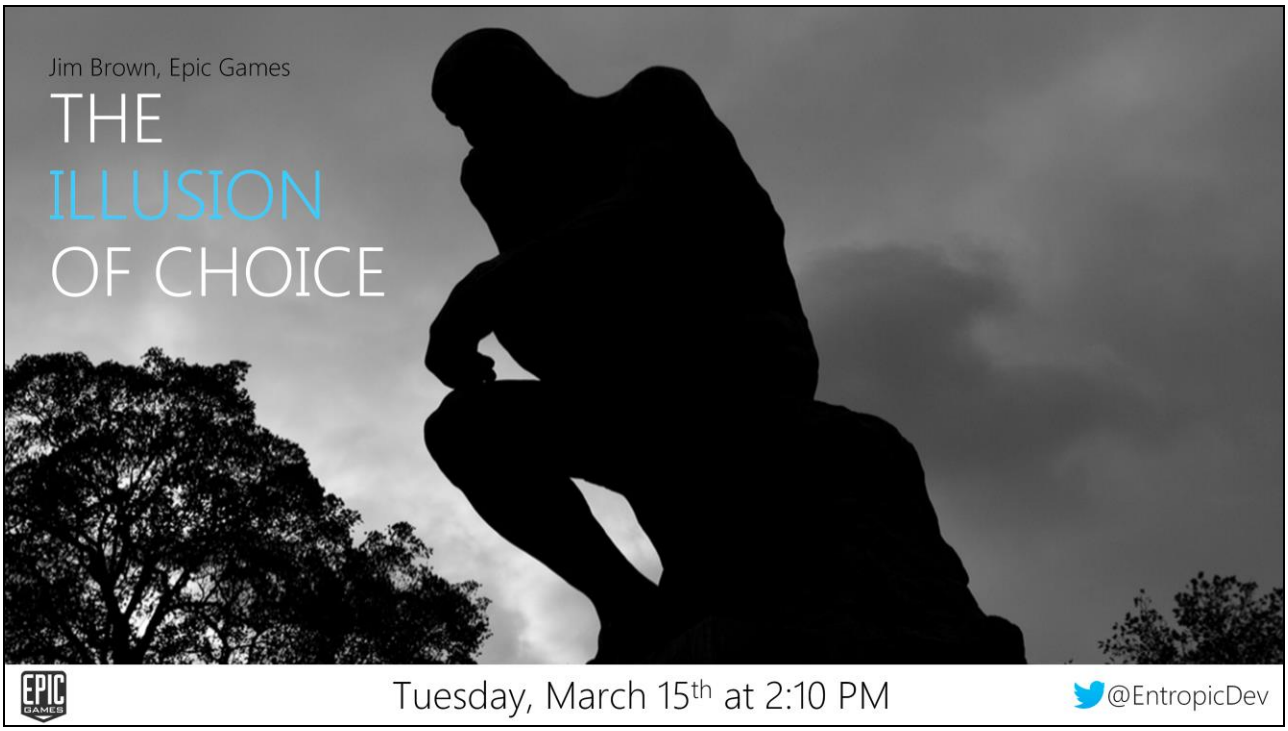



Jim Brown

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Jim Brown has 20 years of experience in the computer and video game industry as a designer, writer, and manager. Jim directed Epic's development teams as a design lead over the award-winning Unreal series and the blockbuster Gears of War franchise. He’s worked on a wide range of titles and genres ranging from FPS games to MMORPGs, from mobile to PC, and has helped design everything from community portals to game IPs.

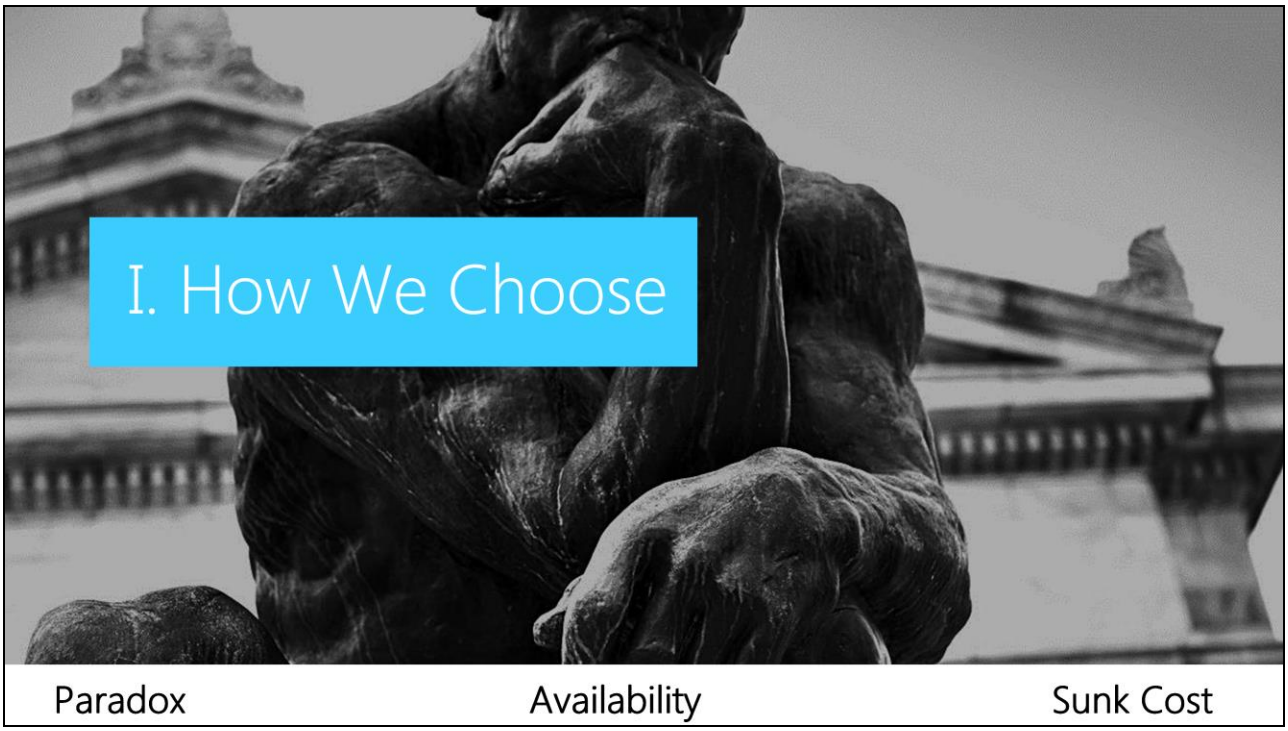
**The Illusion of Choice**

Designers often discuss the importance of player autonomy and choice in games, but in practice we use subtle methods to influence our players' decision making process or provide the illusion of choice where none actually exists.
This talk will briefly examine the psychological and biological underpinnings of how people make choices, and pull examples from shipped games to show how and when we use these "rules" to impact our players, intentionally and otherwise.  With a better understanding of the "theory of choice" we can leverage that knowledge into better designs and better experiences for our players




When someone sits down to play a video game, they are very much at our mercy. They're constrained by OUR rules, their path is locked by boundaries of the world WE'VE built, and their options are limited by the controls the WE set up. But we never want them to feel that way – if we're doing our job well, then the player will always feel like they're the ones who are in control.

We want to give them the illusion of choice so they buy in to the experience and have a great time.




By understanding how people actually make choices, we have a better chance of maintaining that illusion.

"How we choose" is a HUGE topic, and there's no way I can cover ALL of it in 30 mins, so I want to start by introducing three general concepts:

- The Paradox of Choice
- The Availability Heuristic
- Concept of Sunk Costs

I want to talk about each concept individually, then afterwards, I'll get into examples of how you can use them.

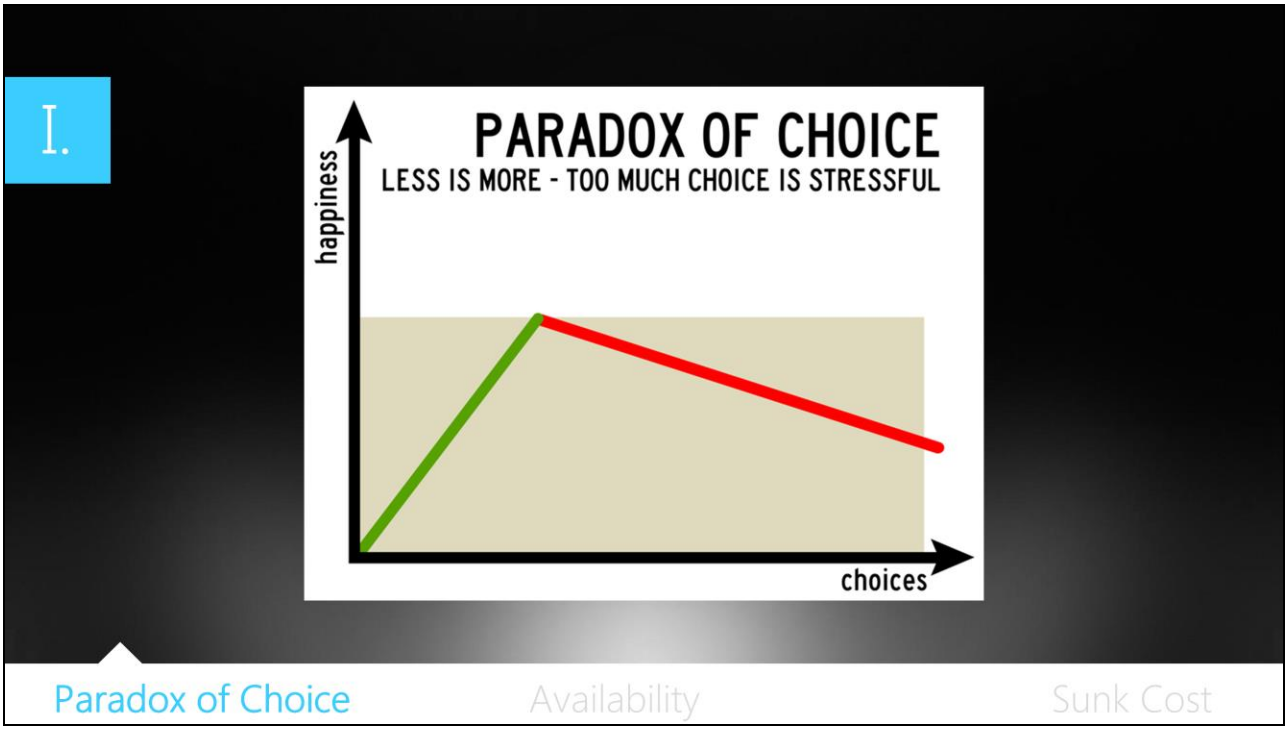



Let's start with the Paradox.

Temple Grandin is a behavioral scientist who developed a special "chute" that funnels herds of cattle into a slaughterhouse. As cows move into the chute, they're uncooperative and scared. Then, it turns and gets narrower, turns and gets narrower… until the cows have no choices left, and they end up calmly walking forward in a single file line.

Dr. Grandin was able to develop this chute by studying her own mind: she suffers from autism, a disease which makes it very easy to become overwhelmed when she's faced with even the most basic of everyday choices.

Through her research, she was able to show that we could actually be happier with LESS choice in our lives.




This is what's known as the PARADOX OF CHOICE:

We know that choice is essential to player autonomy – but that's only true up to a certain point. Beyond that threshold, the vast number of choices we face can become overwhelming. Your brain starts to panic, and you feel like everything is spinning out of control.

This is why it's so essential that we maintain that ILLUSION of choice – too much ACTUAL choice and we can break the players flow state, which makes a game feel less fun or interesting.

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- Unintentionally overwhelming the player is obviously bad, but INTENTIONALLY doing it CAN be effective, if its done in a way that makes the player FEEL like they have more autonomy.




WIRED magazine did a review of Fallout 4 where they said:

"Released from your … pod, the swirl of emotions and questions … THREATEN TO OVERWHELM, right when you need to remain focused."

"You have no idea where to begin… a stark introduction to just how vast and open the world is."

"BUT despite the near-futility of your situation, the seamless introduction of mechanics and systems has you feeling prepared to face whatever you may discover."

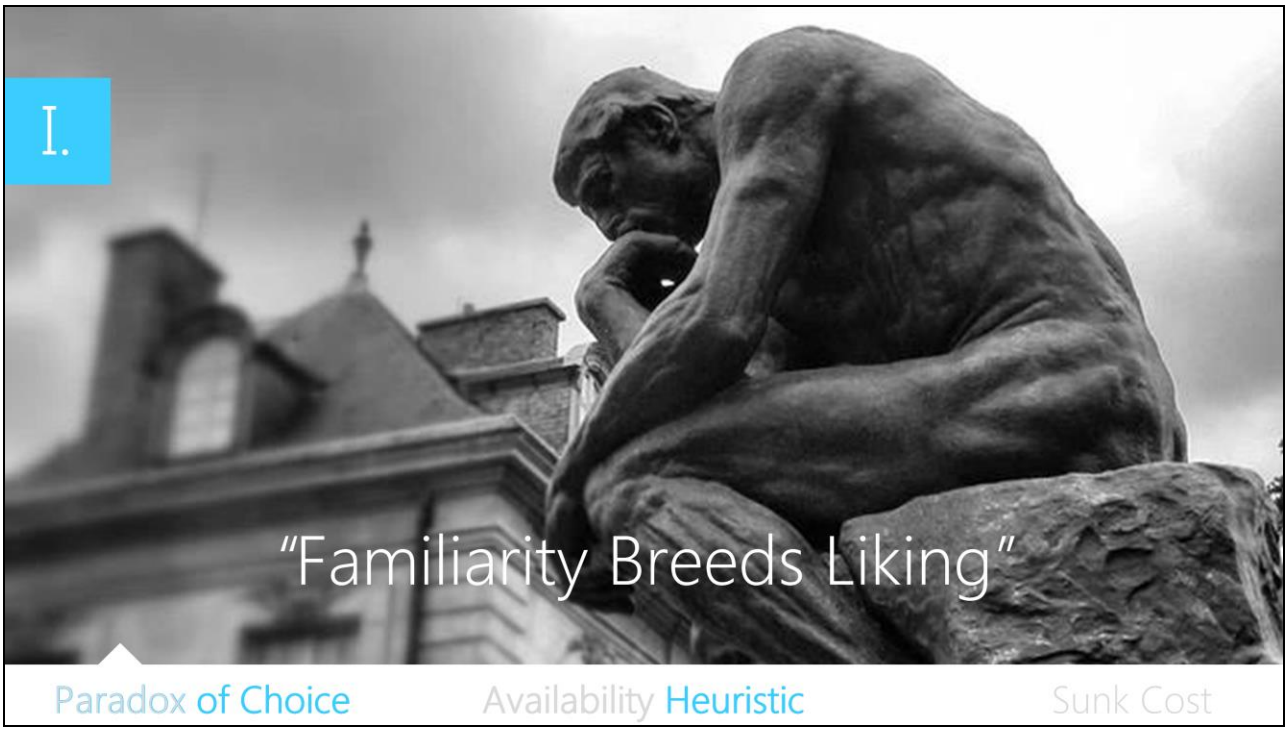
(http://www.wired.co.uk/news/archive/2015-11/09/fallout-4-review-day-one)

In this case, Bethesda is PURPOSEFULLY using The Paradox of Choice to evoke an overwhelming emotional state in the player… and it works because its all an illusion! Environments unfold logically, new controls are seamlessly introduced, and the actual game elements never break the player's flow state.

The Paradox of Choice can be used, like a tool, to your advantage.

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- Much of this has to do with pacing and focus.
- Despite our professed ability to multitask, your conscious brain is only able to focus on one task at a time. It can switch contexts very quickly, but each switch takes a toll. Decision making actually requires both physical and mental energy, and your ability to focus decreases over time.




The second concept is the Availability Heuristic, which basically means that the more familiar something is to you, the more you're likely believe in it or like it.

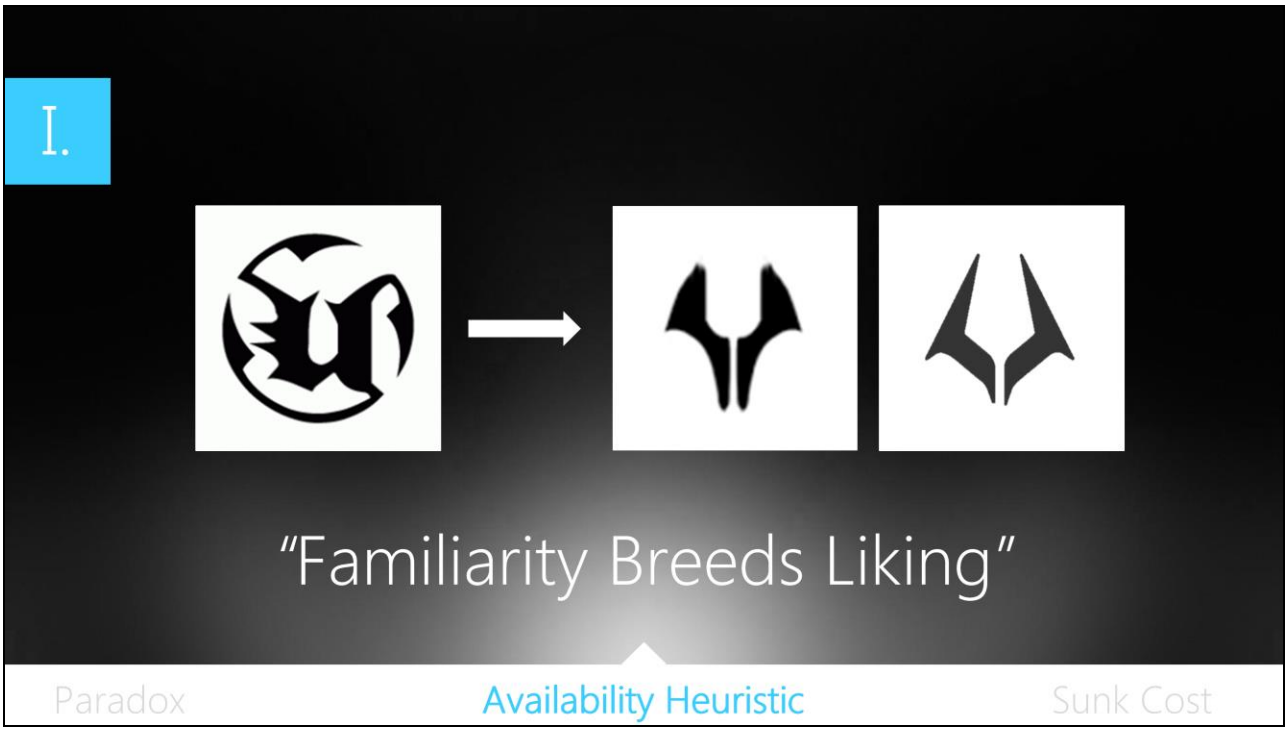
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This is as much biology as it is psychology – our brains are a crazy complicated a web of neurons, and to get from one end of the web to another, our neurons will actually create shortcuts, little jumps and pathways to help us make decisions quickly.

Something that happens MORE often creates MORE of these shortcuts, and becomes more and more "available" to your memory. This means that you're more likely to implement a design that meshes with your OWN personal experiences, instead of one that is BETTER or more MEANINGFUL to the player – even when you're purposely trying NOT to do it.

- How many shooters have you played where you end up in an AC duct?
- How many RPGs have you played where you end up exploring the sewers beneath the city?

These aren't great, original experiences, and we all know that… but we keep building them. They're familiar, so brains shortcut to referencing them as "fun experiences" because "familiarity breeds liking".




The effects of the AH are incredibly subtle, and we usually don't even realize that they're even affecting us.

At one point we wanted to update our oldskool classic UT logo with a more modern design. We found a couple that we liked…

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And then realized that the new logos had been designed by someone who plays a whole lot of Quake.



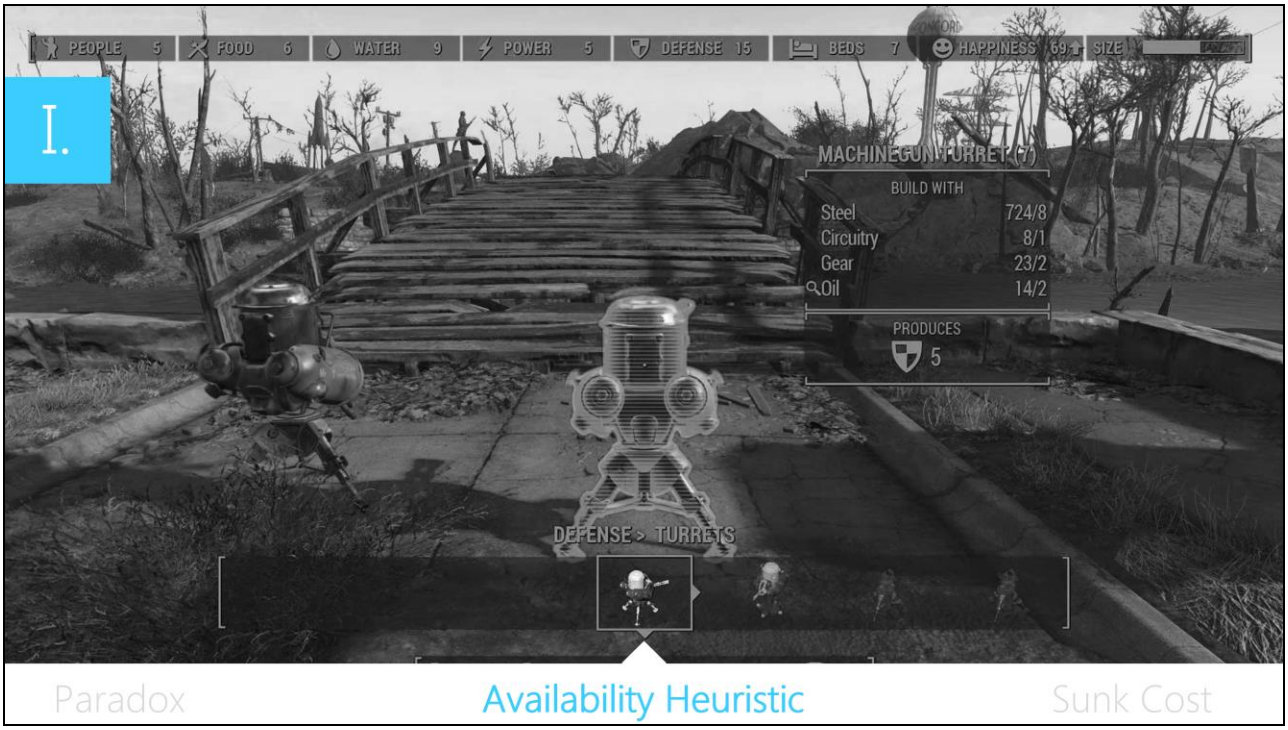

It explains happened when we started to design characters for Unreal Tournament…

[+]

…. then paused active development to work on a new franchise called Gears of War…

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… then went back and finished the UT characters, only to realize (later) that they all look remarkably similar.




The AH effects players as well, by making certain choices appear more VIVID in their memory. Vivid choices can stand out in a number of different ways:

They can stand out physically: Your eyes are drawn to the bright doorways in this image, and you're likely to miss the doors on the side.

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Vivid choices can emotionally: In Bioshock, do you harvest the Little Sisters, or save them? The vast majority of people rescue them (at least on their first play through), because saving children has a very VIVID emotional pull!

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But Vivid choices can also stand out because they're PRESENT: I know several people who thought that the settlement quests in Fallout 4 were actually the main story because they flow together so seamlessly, and they're always PRESENT in your log – so they seem more important.

When we fall victim to the effects of the Availability Heuristic, we're actually succumbing to fake choices, and the effects of this will creep in and start to leach the feelings of autonomy and choice out of your levels.




One other factor that dramatically influences player choice is the concept of SUNK COSTS.

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This is the Fallout dude, giving you one last chance to change your appearance… but usually, once you've made a decision, you're going to sick with it.

It doesn't matter that your chosen path is more difficult – it doesn't even matter that you can easily change your mind and turn back – there's a cost associated with making a decision, and once we make a choice, our brains are IMMEDIATELY invested in the outcome.




This is a big part of what drives the grind of FTP games – Once you've put time and money into setting up your base, you're going to keep at it. Even if making a new base is CLEARLY the better choice, you're more likely to keep rebuilding the old one because you've SUNK your efforts into the original decision.

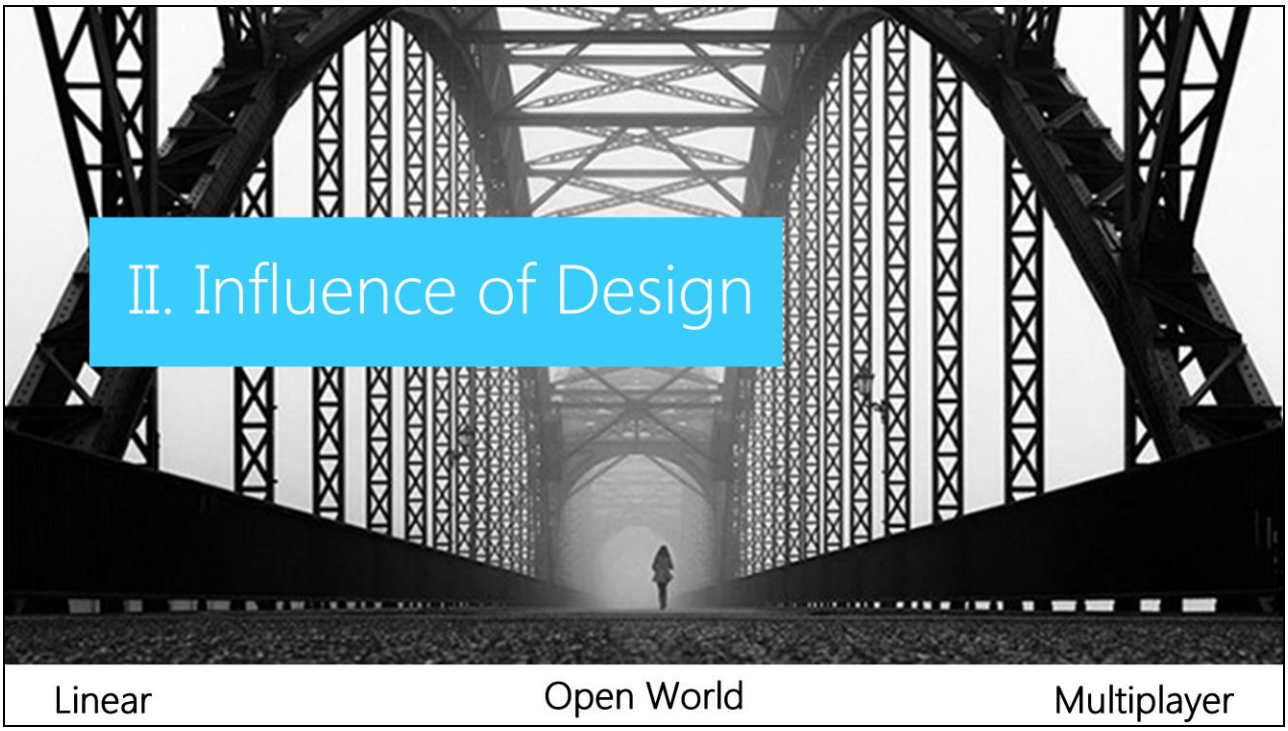
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As usual, this is due (in large part) to our biology. What you WANT and what you LIKE are controlled by completely DIFFERENT parts of the brain. You can control what you WANT ("I want to go out in the sun right now") but you CAN'T control what you like (you can't suddenly decide to like the taste of broccoli).

And since what you LIKE is unconscious, it will almost always take priority over what you WANT. This means that once they start, our players are more likely to continue down a BAD path whether they WANT to or not – your unconscious brain simply ROBS YOU of the choice to turn back.

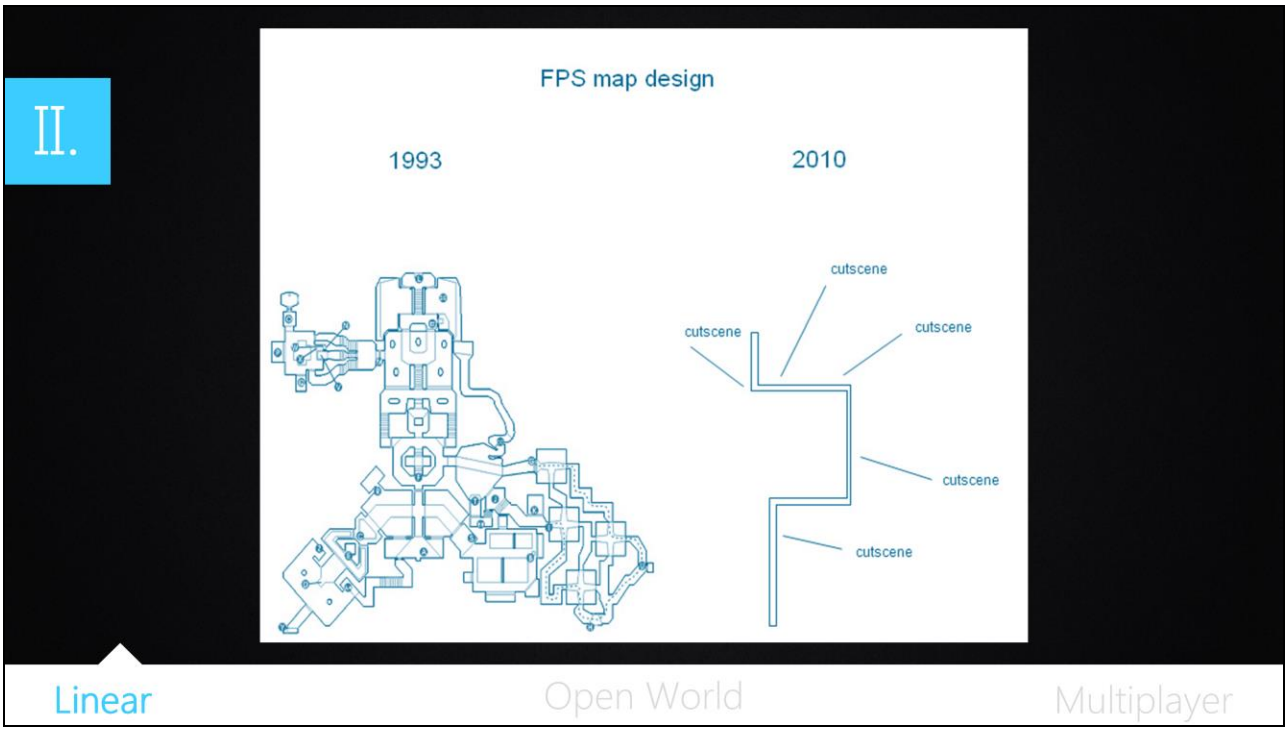
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- If you understand that these similar emotions are controlled by different sections of the brain, then you can leverage when and how each gets used.




So there's three principles that help explain HOW we choose, and now I want to show you some examples of how choice influences different types of level design:

- Linear levels
- Open World levels
- And Multiplayer levels



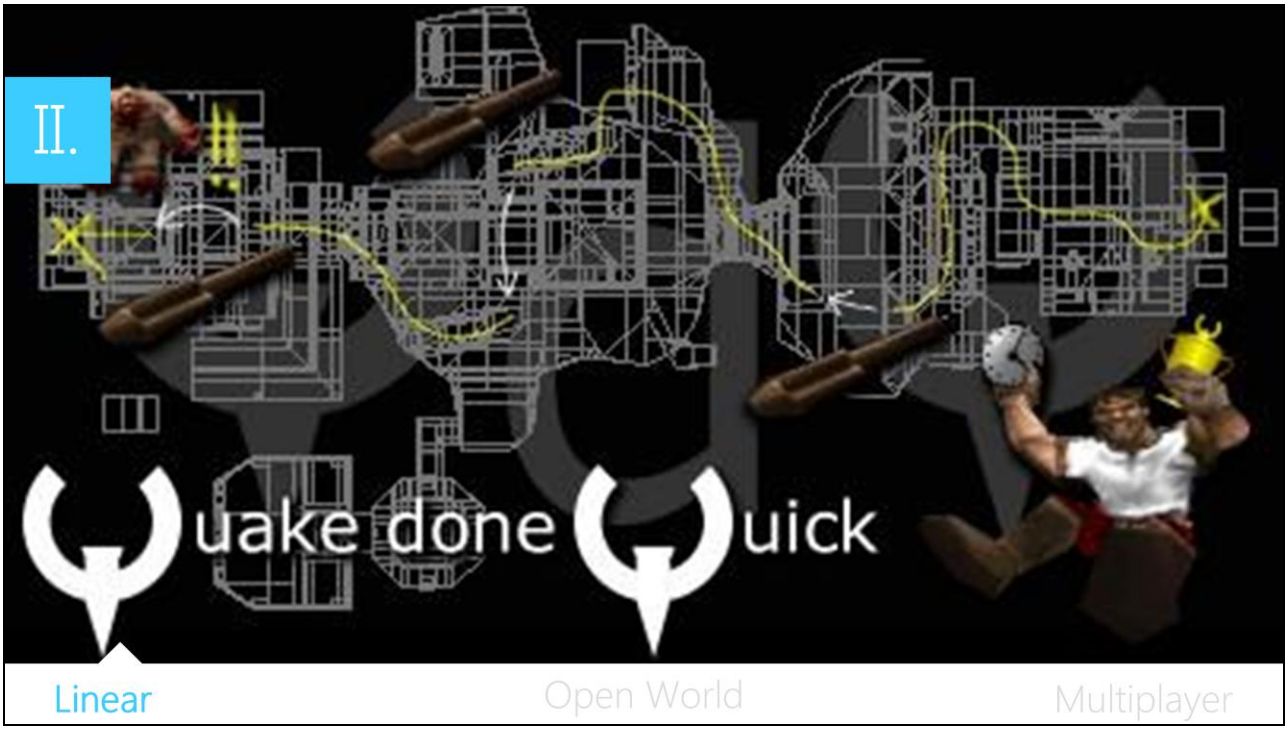

Linear levels are generally considered to be the bane of level design, because the player is put on rails.

This is probably the best known image that explains how most people view "linear" levels. But DOOM's E1M6, the 1993 map example used here, was actually a completely linear level just like the other one. But it was disguised by making you back track after collecting colored keys, backfilling spaces with different types of encounters, and occasionally offering a secret shortcut. The real difference between these two levels, is that the DOOM map maintains player Autonomy.

When people talk about choice, they often confuse AGENCY and AUTONOMY.

Agency is our capacity to choose, to do whatever / whenever. Autonomy, on the other hand, is our capacity to make an informed decision.

It's less about "choice" and more about your brain agreeing to "go with the flow" because you've decided that it's the best option. Autonomy means that you endorse the path that you're on – even if it is linear.




Nothing highlights this better than speed runs – These are players on an extremely linear and unforgiving path, but they feel like they are in control at all times.

Remember that no matter how open or linear a level is, the player is always on some sort of path from A to B – game theory actually revolves around getting a player from the point of origin to a goal. And it's totally fine if there's only one path – as long as we give players the autonomy to FEEL like it's the path THEY chose.

But there are a couple big problems with the way we typically do that:

Because of the AH, the player's brain has a built in set of expectations about what's ahead. To get around this, we throw distractions at them: bright visuals, interesting encounters, side areas to explore…. But doing that is likely to push them past the line of paradox where they're end up feeling lost and overwhelmed.

And then a special part of your brain kicks in, a part that is 100% devoted to filtering OUT all distractions. It only wants to get from A to B. When you put all this together, you have your brain pushing forward, overwhelmed by distractions that its desperately trying to ignore, but refusing to stop because the SUNK COST PRINCIPLE means that you're invested in reaching the destination.

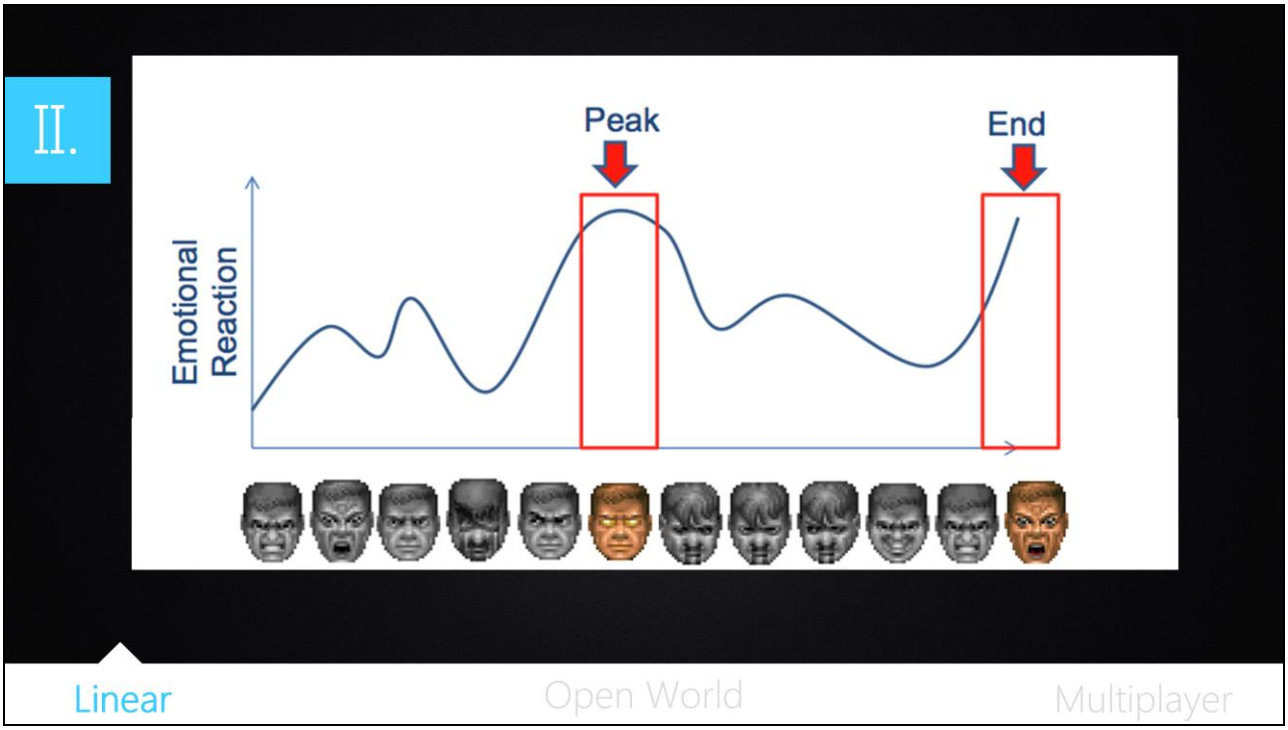
This is no longer a fun experience.

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- Watching speed runs like "Quake done Quick" are a great way to highlight the true "golden path" of a level's linearity, but players still have fun and feel choice when ON that path. I always encourage LDs to find the golden path in their OWN maps – because I guarantee that even if you don't, your players will. If it's too easy to find that path, then there's no challenge, no autonomy, and the ILLUSION fades away.

- Your attentional system "protects" you from registering the mundane it because it isn't deemed important.

- Players can still have autonomy in a linear level if we can convince them that they've chosen to follow the path on their own.




Rather than overwhelm the player, we could try to focus them, using something called Kahneman's "peak-end rule":

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When we look back on something that's happened to us, our brains look at how we felt at the peak of the experience and the end. Over time, those two points – and only those two points – become the brain's reference for our overall emotional experience. This means that any points of stress, boredom, or annoyance have almost no influence on our long term memory IF they're far enough removed from the peak and the end points.

If you focus on making the PEAK and END points the most VIVD for your player, they become the most AVAILABILE (remember the Availability Heuristic?), then you can focus your design in a way that maximizes the enjoyability of your level, even if the level is completely linear.

This is one of the reasons why people can suffer, for hours, through extremely difficult levels and still come away feeling great.

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- See: Ultima, Roguelikes, Bloodborne, COD on highest difficulty, etc.




On the other end of the spectrum, we have Open World Designs,

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which probably SEEM like they offer more choice to the player than any other type of level. But even with an open "sandbox" level, the player's choices still have to happen within the constraints of the game's rules and systems.




Completing the Thieves Guild quests in Oblivion and Skyrim are some of my favorite memories in gaming. But I guarantee that if you did the Thieves Guild, too, then we followed the same quests, and we had the same outcome. You made the decision to start the quest chain, but had no choice in the order or outcome of the specific quests involved. You just had good autonomy along the way, and that gave you the Illusion of Choice. Your thieves guild experience probably FELT a lot more unique than it actually was.

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People feel this same way about MMOs, which feel like they have completely unlimited choices, but in the end, its an illusion. There's a HUGE sunk cost in creating a character and bringing them all the way up to max level. There's really only one "right path" to complete an instance and get the necessary high level gear. Guilds practice their raids over and over, until there is no real choice left – it's just a "performance" where everyone has to do the exact right thing at the exact right time.

I'm not saying there's not choice in these things – obviously there is. But "Open World" doesn't necessarily mean MORE choice, or BETTER choice. When we give someone the option of left or right, that's not really "choice", that's the kind of simple decision making that leads to players feeling overwhelmed.

"Real choices" are MEANINGFUL, where the player has autonomy and feels

responsible for the outcome, good or bad.




Which brings us to multiplayer levels, where players arguably have higher levels of autonomy than in any other type of design.

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…Because MP choices really matter – they have a butterfly effect that impacts everyone else's choices as well in a loop of cause and effect.



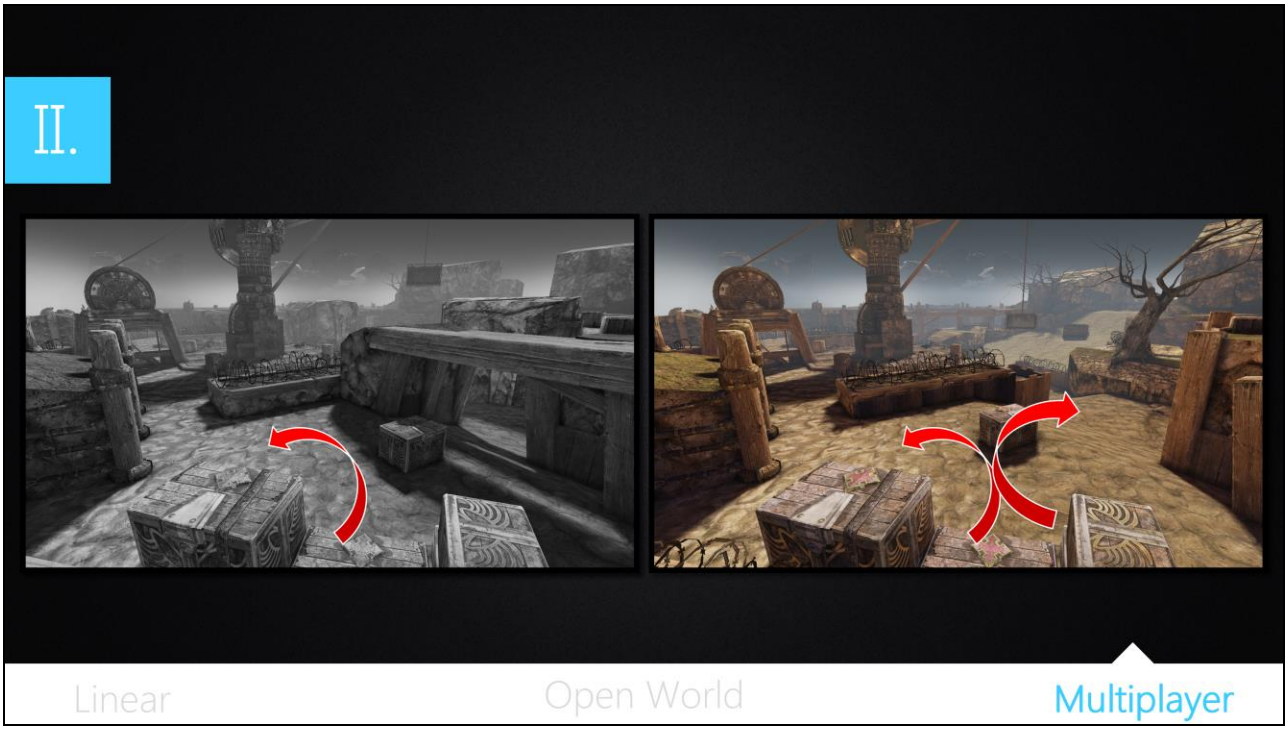

MP experiences are social, and MORE people means MORE information. Information is the currency of choice.

With MORE information you can make BETTER choices, and that makes decisions FEEL more meaningful.

BUT… a MP designer still has influence over player choice, and the goal is to make sure that the IMPACT of that influence doesn't take away player autonomy.

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- Random outcomes caused by the designer are the worst thing in multiplayer.




Even simple changes in architecture can affect how players make choices in a map.

Here's shots of two versions of the same map. In the left image, players almost always chose the left hand path. The visuals unintentionally funneled them to a specific point.

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By removing the door frame (in the right had image), we opened lines of sight and got a much better distribution of players.

Players were able to make that choice WITHOUT our influence, and WITHOUT us adding in more path options.

II.



Linear Open World Multiplayer



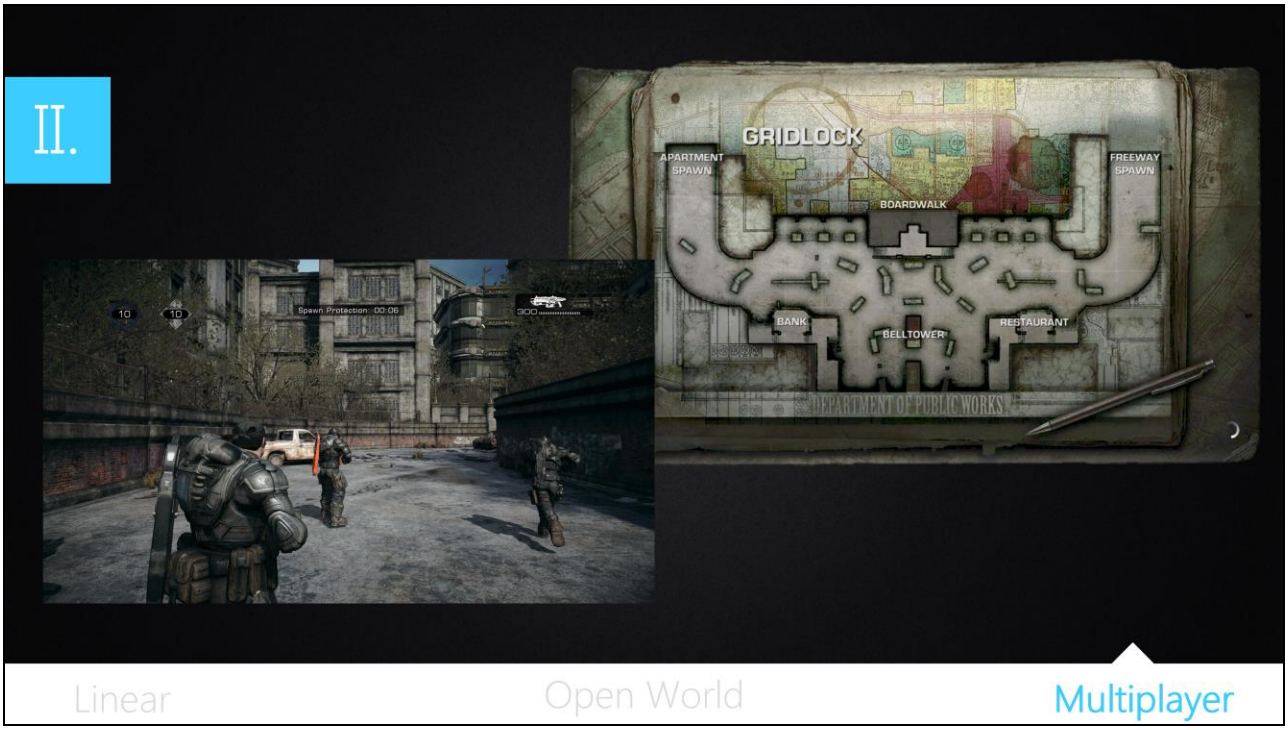

Pathing decisions in MP maps really SHOULDN'T be complicated.

If you look at THE most popular map in almost any MP game, you'll notice a pattern: They all leave very little path choice to the players.

Choose path A or B in Dust on Counterstrike…




Chose one of 2 maybe 3 very obvious lanes in MOBA maps, like Summoner's Rift in League of Legends…




Or walk down the one single wide open corridor in Gridlock on Gears of War…



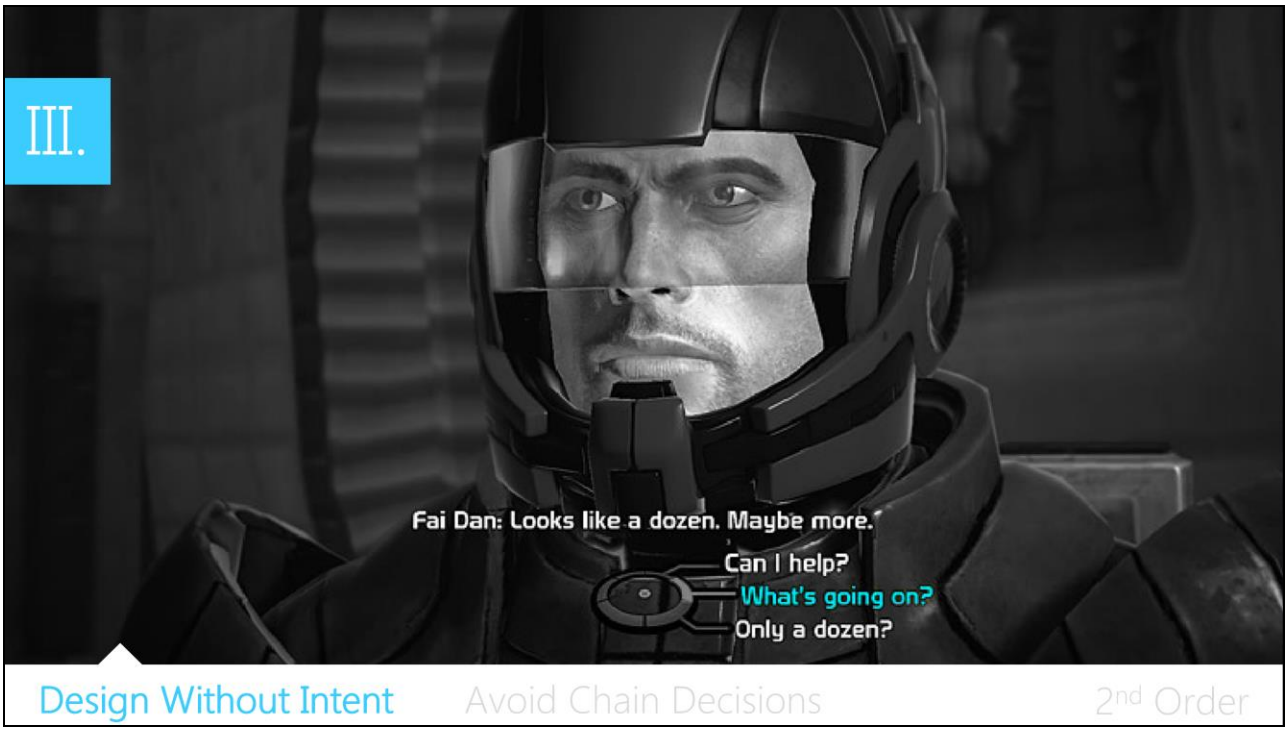

These complex, “choice filled games” are actually MOST successful when they respect the Paradox and REMOVE choice.

By reducing the overall cognitive load off of the player, they can focus on what THEY perceive as the more important choices, increasing autonomy and overall happiness.




So, how can you use this information to give players meaningful choice and autonomy in your maps? I have 3 quick tips:

- Design without Intent
- Avoid Chain Decisions
- Enable 2nd Order decision making




First off: Design Without Intent.

I'm not just spouting philosophy here: There is a technical term used by architects and engineers called "DESIGN WITH INTENT". It means employing a strategic design that is purposefully intended to influence someone's behavior.

- When you go to Disneyland, pathways and architecture are purposefully designed to reduce traffic jams and help guide you across the park. This is awesome!
- When you go to Las Vegas, the casinos are designed to purposefully disorient you, and make you lose track of time. This is NOT so awesome.

WE guide our players with color, and light, and architecture… and USUALLY, we're really good at doing it around key landmarks. But EVERYTHING we build has an impact, and we're very inconsistent about when we pay attention to that. We have WAY more influence that we mean to because we're sloppy.

- In the example here, one choice has been highlighted by default, and that means that players are significantly more likely to select it – even if only by accident.




Advertisers use similar techniques (like these) to influence your purchasing decisions (they're important, please look them up), and they CAN be used responsibly…

But if your goal is autonomy, then these techniques are all flawed. They all work because they activate the SUBCONSIOUS decision making part of your brain.

These techniques actually REDUCE autonomy by abusing the effects of the Availability Heuristic and the Sunk Cost principle to make players do things against their rational will.

So when I say that we should design WITHOUT intent, I'm not saying we should be haphazard or sloppy, I'm saying we should give our players OPTIONS instead of INFLUENCES, so they can make their own choices, and find their own meaning in the outcome.

[***]

- These techniques actually REDUCE activity in your prefrontal cortex.




Next: Avoid Chaining Decisions

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If you stack decisions too closely together, the player's brain will fall into the trap of the Sunk Cost principle: dominos start to fall and they can't turn back. And the effects of this are cumulative, so the effort in making decisions becomes more difficult with every new choice in the chain.

Eventually, the brain shuts down, the Illusion fades away, and players feel less autonomy.

[***]

- The effects of something called OMISSION BIAS means that you regret missed opportunities even more.

- Neuroscientists have discovered that decision overload can lead to a loss of interest. Although most of us have no trouble ranking the importance of decisions if asked to do so, our brains don't automatically do this. We have a limited capacity to make decisions, and there are only so many we can make in a day. Once we've hit that limit it doesn't matter how important they are. The decision-making network in our brain doesn't prioritize.




The Witcher strikes a very interesting balance in this regard. Some reviews mention that there are TOO many moral dilemmas, TOO many ways for the narrative to play out. I don't necessarily agree, but I can see why someone might feel that way – its human nature wonder about the path not taken, every time… over, and over again, until you start to believe that no matter what you choose, you have chosen incorrectly.

But regardless of how you feel about the volume of choice in the Witcher, they did do one thing very well: they spread out the important choices so that by the time you got from one to the next you can feel the impact of your choice, and see its effects on the world.

This helps their brain to differentiate the peak and end points of the experience, so there's a better chance that they'll find meaning, and autonomy, in the outcome.




And lastly: Let your players make 2nd Order Decisions: [Cass Sunstein and Edna Ullmann-Margalit]

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2nd Order Decisions are rules or strategies that people use to avoid getting frustrated by indecision.

For example, I have a set of rules that I always follow when gaming. When given the option:

- I always choose ranged over melee.
- And when I wander into a new area, I always go right first. Don't even have to think about it, I just go – and that's the whole point. At a fork in the road, deciding which way to go is a 2nd order decision, because it falls behind my initial rule to always go right.

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- 3 concepts: Rules, Presumptions, and Standards exemplify 2nd order decision making, and can be combined into systems or rules for the player.




Assassin's Creed handles this by offering a web of interconnected activities:

You can do everything in JUST ONE district, OR follow a single quest line across borders, OR just focus on a single type of activity, OR just do the activities that are at your level, OR just let random events wash over you… there are hundreds of potential activities, but the PLAYER decides when to approach each one, and how to group them, so they don't have to think about them all at once.

This maintains the illusion that the world is impossibly large, that there are unlimited activities, and that there is more choice in the outcome than there actually is.

If they use 2nd order decisions, the player is applying their own INDIVIDUAL biases (so the AH has less effect), and allows each and every person to find their own "golden path". This means that players will find their own memorable peak and end points, and construct meaning from their experience.

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- Making multiple choices in a sequence impairs subsequent self-control. Choosing is more "depleting" than forming preferences or implementing choices made by someone else.
- Anticipating a choice can reduce the depleting effect for the first choices but not for many choices.

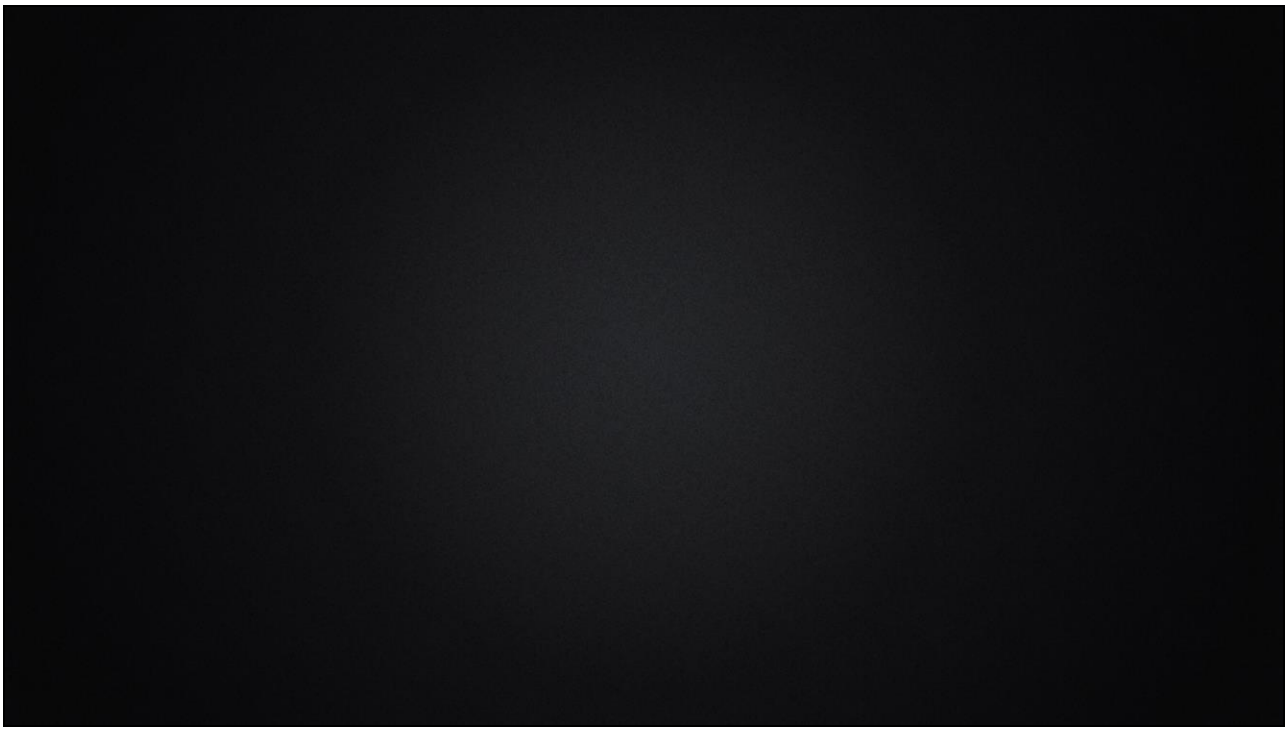



As Level Designers, we want the world to feel bigger than it is, the choices to appear as if they have more impact than they do, and we want the player to feel much more in control than they actually are.

Ask yourself: Do you want choice to be up to the player, or up to the player's brain? Our brains work against us more than we'd like to admit, and as a designer you CAN take advantage of that.

All of this barely scratches the surface of perception, choice, game theory, and a million other related topics, so I would STRONGLY encourage you to read up on this stuff and use that knowledge to improve your level designs.

Thanks!



MORE REFERENCE:

PROSPECT THEORY (Kahneman and Tversky) From behavioral ...economics, describes how people choose between alternatives that involve risk. People embrace risk in the domain of potential losses, but are risk adverse in the domain of potential gain. For example:

Left path gets to exit; right path is more difficult, but gets to exit with potential of great rewards. Most likely to go right.

Let path gets to exit, and right path is either a great reward or permadeath, no option for recovery if they fail. Most will go for the "sure thing" on the left.

Somewhat difficult to wrap your head around, but basically: How we present choice / outcomes has a huge impact on what people decide.

http://www.gamedesignersvault.com/epic-games-on-level-design-psychology-unreal-tournament/

https://www.ted.com/talks/barry_schwartz_on_the_paradox_of_choice?language=en

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